

REMARKS

Claims 1, 4-15 and 19-35 are pending in the application. Claims 4-15 and 19-33 have been withdrawn from consideration. Claims 10 and 25 have been cancelled without prejudice or disclaimer of subject matter. Claims 1 and 16 are the only independent claims.

Claims 1, 16, 34 and 35 have been rejected under 35 U.S.C. § 103(a) as unpatentable over JP 9-186077 A (Nakamura) in view of the Publication "Environmental, Health, and Safety Guideline for Semiconductor Manufacturing Equipment" (SEMI S2-200). This rejection is respectfully traversed.

Pending independent Claim 1 is directed to semiconductor manufacturing apparatus in which a chamber encloses a main body of the semiconductor apparatus. A purging unit purges inert gas in a predetermined area inside the chamber. A setting unit sets a maintenance mode and a panel for maintenance is provided in an outer wall of the chamber. A sensor detects an opening in the panel and a supply unit supplies clean, dry air based on the sensor output when the maintenance mode has been set by the setting unit.

Pending independent Claim 16 is directed to a method of controlling semiconductor manufacturing apparatus in which an inert gas is purged in a predetermined area inside a chamber enclosing a main body of the semiconductor manufacturing apparatus. A maintenance mode is set and clean dry air is supplied based on the output of a sensor that detects an opening in a maintenance panel provided in an outer wall of the chamber when the maintenance mode is set.

In Applicant's view, Nakamura discloses an exposure apparatus in which a light supplying device supplies exposure light. An optical system directs the exposure light to a substrate to be exposed. A cover covers a predetermined portion of the optical system and a gas supply device supplies an inert gas to the inside of the cover. A detector detects a quantity of the inert gas inside the cover and a controller controls the light supplying device on the basis of an output of the detector.

SEMI S2-200 has been cited as indicating (22.2) that sufficient exhaust ventilation must be provided during maintenance in view of hazards during maintenance that should be prevented (6.1) and that absence of oxygen or presence of hazardous gases in maintenance areas are to be prevented by using adequate exhaust ventilation (22.1.2 and 22.1.2.1).

According to the invention defined in pending Claims 1 and 16, supply of clean, dry air in a chamber enclosing the main body of a semiconductor manufacturing apparatus having an area where inert gas is purged is controlled based on the output of a sensor that detects an opening in a maintenance panel when a maintenance mode has been set. Advantageously, clean, dry air that is supplied when a maintenance worker accesses the chamber by opening the maintenance panel is conserved.

Nakamura teaches stopping the supply of inert gas and checking the degree of inert gas charge in a charge path 5A through a gas density sensor 14A. As the inert gas charge level becomes lower than a predetermined value, a safe inert gas charge level is displayed and a door opening signal is applied to a fixing mechanism 13A (line 46 of column 7 to line 5 of

column 8 with reference to Fig. 5 of corresponding U.S. Patent 6, 295,121). Nakamura may teach a light supplying device and an inert gas supplying device but is devoid of any suggestion of supplying clean, dry air in order to increase the oxygen concentration in the maintenance area. Accordingly, it is not seen that Nakamura in any manner suggests the feature of Claims 1 and 16 of supplying clean dry air based on the output of a sensor that detects an opening in a maintenance wall when a maintenance mode has been set.

SEMI S2-0200 only teaches eliminating hazardous gases using exhaust ventilation and requires that hazardous gas must be completely eliminated before a maintenance panel is opened. As a result, SEMI S2-200 is devoid of any suggestion of supplying clean, dry air or suppling clean, dry air based on the output of sensor that detects an opening in a maintenance panel when a maintenance mode has been set. Accordingly, it is not seen that SEMI S2-200 in any manner relates to the features of Claims 1 and 16.

With regard to the cited combination, Nakamura is restricted to stopping the supply of inert gas and checking the degree of inert gas charge in a charge path through a gas density sensor. SEMI S2-200 only teaches exhaust ventilation to completely eliminate hazardous gas before a maintenance panel is opened. Neither of these references in any manner suggests anything about the feature of Claims 1 and 16 of supplying clean, dry air responsive to sensed maintenance panel opening in a maintenance mode. Accordingly, it is not seen that the addition of SEMI S2-200's exhaust ventilation to eliminate hazardous gas before opening a maintenance panel added to Nakamura's stopping of inert gas supply and reducing inert gas charge before opening a maintenance panel could possibly suggest the features of Claims 1 and 16 with respect

to supplying clean, dry air upon sensing a maintenance panel opening in a maintenance mode of operation. It is therefore believed that pending Claims 1 and 16 are completely distinguished from any combination of Nakamura and SEMI S2-200 and are allowable.

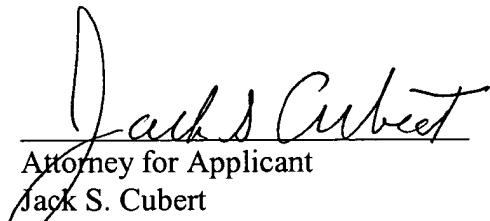
A review of the other art of record has failed to reveal anything which, in Applicant's opinion, would remedy the deficiencies of the art discussed above, as references against the independent claims herein. Those claims are therefore believed patentable over the art of record.

The other claims in this application are each dependent from one or another of the independent claims discussed above and are therefore believed patentable for the same reasons. Since each dependent claim is also deemed to define an additional aspect of the invention, however, the individual reconsideration of the patentability of each on its own merits is respectfully requested.

In view of the foregoing amendments and remarks, Applicant respectfully requests favorable reconsideration and early passage to issue of the present application.

Applicant's attorney, Steven E. Warner, may be reached in our Washington, D.C. office by telephone at (202) 530-1010. All correspondence should be directed to our address listed below.

Respectfully submitted,



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